

to a thoroughly representative lot of *grossulariata*, might do worse than leave half a row in their cabinets for this ab. *lutea*, and another half row for ab. *flavofasciata*, which is also subject to much minor variation, and is a very beautiful form of the species. Its variation lies in the width and coloration of the central transverse yellow band crossing the forewings, in the occasional intensification of the black markings on the forewings, and in the number of small black spots, and the development of the faint yellow line on the hindwings. I have not yet heard of a male *flavofasciata* occurring in a state of nature, and should be pleased to hear from any of your readers who possesses a specimen.

One of the most extraordinary *grossulariata* in my cabinet was reared from a Lancashire larva, by a friend of mine, in 1904, and generously presented by him to myself. This aberration—*chalcobares*, n. ab.—is a very dark specimen, the only white on it being that part of the forewing which lies between the exterior of the central fascia and the subterminal row of black spots, while the area between the base of the forewings and the interior of the central fascia, is thickly laden with bronze. The hindwings are as black as in any *nigrosparsata*, and have the central horizontal row of black spots slightly flushed with bronze. The specimen is a male of large size. Those who have reared my favourite species in very large numbers will know how extremely rare pale varieties are in comparison with those of darker hue, so that I am here tempted to describe, and name *lactea-sparsa*, n. ab., what I deem the finest pale form I have ever reared. It came from a wild Hazeleigh larva, and emerged on July 22nd, 1904. It is a small but perfectly developed female, and, so far as markings go, is of the *flavofasciata* type, only that the hindwings have the horizontal band of black central spots well developed; but the peculiarity is that the forewings are densely dusted with blackish-brown. For a pale form to be thus suffused, is, in my experience, altogether unparalleled. The dusting on the hindwings is so faint as to be barely perceptible. In conclusion, to those about to rear this species, just a few words concerning the foodplant. In towns, *Euonymus japonicus* is much affected by the larvæ, which also attack gooseberry and currant bushes, whilst on walls they often do much damage to the foliage of apricot and plum trees. Out in the country blackthorn is indisputably the favourite pabulum, but the wild spindle, sawow of species, and the common buckthorn, are also favoured. I myself have not found very many larvæ, as do some collectors, on the wild spindle, but have sometimes collected them very freely from sawow bushes. My plan is always to feed wild larvæ on the plant they were taken from, and in the case of those reared from the egg, to adhere to one particular foodplant. I believe gooseberry and red-currant produce the finest imagines, but I am quite convinced that the foodplant has no influence whatever on the coloration of the imago.

The genus *Bembidium*, Lat., in Cumberland.

By F. H. DAY, F.E.S.

Although the northern counties of England have their own special coleoptera, in point of number of species they cannot compare with counties enjoying a more southerly position. Some few genera,

however, are much better represented in the north than in the south, one of the most interesting of such being *Bembidium*. Of this genus, 34 species have now been taken in Cumberland, of which I have myself captured all but two during the few years in which I have collected beetles. Although many of these are very local in distribution, with few exceptions they may be captured freely in their particular haunts. For the most part, the species here enumerated occur near water, a striking divergence from this habit being shown by *B. nigricorne* which I have only found on high-lying moors. The species are most abundant in spring and early summer. After June, they, as a rule, become scarcer, but some, at any rate, appear again in September and October. Few beetles are easier to find than *Bembidia*, the simple plans of dashing water over the shingle beds by sides of streams, and of "treading" the mudbanks on salt-marshes being sufficient to flush them from their hiding-places. When the sun is hot they are very active, some, indeed, taking readily to the wing.

B. rufescens, Guér.—Abundant in flood-refuse in autumn and early winter. Seldom noticed in spring or summer.

B. quinquestriatum, Gyll.—Apparently rare here, as I only know of three specimens, one taken by Mr. Routledge and two by Mr. Britten.

B. obtusum, Stm.—Moderately common in moss and flood refuse.

B. guttula, F.—Very common both in dry and damp situations.

B. mannerheimi, Sahl.—Frequently in company with the last. Very common in tidal rubbish on the Solway marshes.

B. biguttatum, F.—Common in flood-refuse, also on mud at the edges of ponds and ditches.

B. aeneum, Germ.—Occasionally taken on the banks of streams. On the extensive salt-marshes at the estuary of the Eden it is abundant, occurring on the muddy sides of creeks and drains.

B. doris, Panz.—Local, but abundant on the edges of ponds among the Silloth sandhills, also near a boggy pond in Orton Woods, Carlisle, and on the margins of Whin's Pond, Penrith.

B. minimum, F.—Exclusively maritime. Occurs all along the Solway, on mudbanks and sandy beaches.

B. normannum, Dej.—Very local. I have only found it on mudbanks on Skinburness Marsh, where it is common. According to Fowler (*Brit. Coleoptera*, i., p. 108) it appears only to be known in the south and south-east of England.

B. schüppeli, Dej.—Common on the banks of the River Irthing, and also of the River Eden, in one or two places. The first British examples were taken on the first-named river by the late T. J. Bold.

B. lampros, Herbst.—Common on roads, pathways, dry hedgebanks, etc.; var. *velox*, Er., I have only taken on Burgh Marsh.

B. nigricorne, Gyll.—Locally abundant in heathy, elevated districts; Wan Fell, at an elevation of 700 feet; Cumrew Fell at about twice that elevation. Commonest on sunny days in April and September. On dull days hides in cracks in the dry ground, but may be disturbed by tobacco smoke.

B. tibiale, Duft.—One of the most abundant river-side species, occurring on every stream I have visited.

B. atrocaeruleum, Steph.—Almost equally common with the preceding.

B. decorum, Panz.—Occurs in company with the two last on the gravelly banks of most of our streams.

B. monticola, Dej.—Abundant in spring and autumn on the sandy banks of the Gelt, under and in the chinks of soft sandstone slabs. Also by the Eden, Irthing, Petteril, etc.

B. stomoides, Dej.—Another species added to the British list by Bold, who first met with it on the Irthing, at Lanercost, in June 1848. I have taken a number in the same locality, but it occurs more freely on the banks of the Gelt, often in company with *B. monticola*.

B. affine, Steph.—Rather a scarce species. I have taken perhaps half-a-dozen on the banks of the Irthing and its tributary, the Gelt.

B. quadriguttatum, F.—Taken by the late T. C. Heysham somewhere near Carlisle, over 70 years ago. This is the only species in the Cumberland list which has not been taken of late years. As it occurs in Scotland there is no reason why it should not turn up again here.

B. lunatum, Duft.—On several occasions I have taken this species in numbers, in June, on mudbanks on Burgh Marsh. Odd specimens are met with on the Irthing, where, however, Bold captured it freely 50 years ago. Sometimes takes to the wing in hot weather.

B. testaceum, Duft.—Although a "northern" species, I have but one Cumberland specimen which I captured on the Irthing in 1905, and do not know of any others.

B. concinnum, Steph.—May sometimes be taken as early as March, running actively in the sun on mudbanks on the Solway. Very common at times.

B. femoratum, Sturm.—Under stones on sandy banks of the Petteril, Eden, and Irthing, but restricted to particular spots.

B. brunellense, Wesm.—Scarce in the Gelt valley. On the banks of the Black Lyne, in the north of the county, I took a fine series in October, 1904.

B. saxatile, Gyll.—Very abundant among loose gravel on the edges of a little stream just where it enters the sea at Allonby. Has also occurred inland.

B. anglicanum, Sharp.—Taken by Bold on the Irthing. I have not, as yet, met with it on that river, but have taken two specimens on the Gelt.

B. littorale, Ol.—Everywhere common.

B. pallidipenne, Ill.—Not uncommon on the sandy beach at Silloth.

B. bipunctatum, L.—Mr. Britten and I have several times taken this species in some numbers by the sides of the Eden by dashing water into the angles of rocks, where sand had drifted and moss grown. Rare on the coast.

B. punctulatum, Drap.—On some of our streams perhaps the most abundant *Bembidium*, although nearly absent from the Gelt where so many of the genus abound. A rather striking blue form occurs in the Eden Valley.

B. prasinum, Duft.—Local on the Irthing, Eden, and Caldew. On its favourite shingle beds, however, it is the prevailing species.

B. varium, Ol.—Common on Skinburness Marsh, where it frequents muddy hollows kept moist by the high tides. On stepping on to a piece of ground where this species is present it is amusing to note

the curious way in which the beetles all race off in the same direction, like a flock of diminutive sheep. According to Fowler it had not occurred further north than Yorkshire at the time his work appeared.

B. paludosum, Panz.—Occurs sparingly by the Gelt. Very abundant on sandy banks by the Eden, running actively and “flocking” together like the last-named. Often takes to the wing. Recorded by Canon Fowler from the banks of the Derwent, a river I have myself found a disappointing one for the genus, at any rate along its higher waters.

In addition to the foregoing, other species may yet be found in Cumberland, the likeliest, from their recorded distribution, being *B. riparium*, *clarki*, *gilvipes*, *nitidulum*, *flammulatum*, and *obliquum*.

Notes on *Coleophora genistæ* and *C. gryphipennella*.

By HENRY J. TURNER, F.E.S.

Coleophora genistæ.—Mr. Prout sent me a few cases of *Coleophora genistæ* from Loughton, on May 9th, 1904, and Mr. Goulton some from Bookham on the same date. They were then very small, and appeared to have moved from their hybernation only about a week. Their food-plant, *Genista anglica*, is usually very late in showing its leaves, and these larvæ are then very eager for food. They will only feed sparingly on ordinary broom. On June 4th, the larvæ were extremely abundant at Bookham, many plants being quite denuded of green leaves. The larvæ were of all sizes, and frequently two, three, and four, cases could be seen assembled at the tip of a branch, which they had completely cleared of both leaves and flowers. They much prefer the flowers and abandon the green leaves as soon as the flower-buds and flowers are developed. Unfortunately, I omitted to carry these through.

Coleophora gryphipennella.—On May 14th, 1904, I took a case of *C. gryphipennella* at Ashstead, on rose, but a good search produced no more. This species does not seem to be numerous anywhere; odd specimens occur everywhere, but I have never met with more than one or two in any one spot. At Chatham, on May 29th, I found a winter case. It was situated on a rose-leaf close to a scallop, from which the larvæ had made its new case, when it abandoned the old one. The owner, however, did not show itself. The piece cut out was, as usual, cut from very near the base of the leaf near the stalk. There was a blotch on the same leaf, showing that the larva had made a meal and then decamped to pastures new. On the 4th of June, I met with two cases at Bookham, one of these was large and rough, while the other was thin and much newer. On the following day, the larva with the rough-looking case, abandoned it, and made a new one, which was of a delicate green colour, the whole of the chlorophyll of the leaf not having been scraped away from the inside of the cuticle, when the larva was eating out its mine.

The larva, in general coloration, was of a dull brown-orange. The 1st thoracic segment had a large dorsal plate, which nearly covered the back of the segment, with a median suture wider at the rear. The 2nd segment had two large dots of black on the dorsum. The 3rd segment had no trace of plates. The spiracular plates were present on the 1st and 2nd segments, but the 3rd segment had no trace. The anal segment was protected by a small, squarish, black plate.